REMARKS

Claims 1-7 and 12-18 were rejected under 35 U.S.C. §103 as being obvious over Otaka (U.S. Patent 5,412,209). This rejection is respectfully traversed. In regard to **claim 1**:

(1) At the interview, the relationship of irradiation density and magnification was discussed. The applied reference Otaka is directed toward changing the magnification in order to adjust the irradiation density. At col. 4, lines 29-37, Otaka writes, "by irradiating ... for a predetermined time at an imaging magnification ML which is lower [than a desired] magnification MO ... or at an imaging magnification MH higher than MO and thereafter returning [to] MO ..., an excellent image can be obtained." Otaka changes the magnification for a "predetermined period." What is this predetermined period?

At col. 12, line 48, Otaka states of Fig. 15, "In step S11, an irradiation time t1 at low imaging magnification ML is set. In step S12, the magnification changing circuit 216 changes the scanning width of the electron probe 210 on the specimen surface so to switch the imaging magnification from ... MO to ... ML." (In Fig. 17, discussed at the interview, irradiation times t3and t4 are used instead of t1.)

Clearly, the "predetermined time" cannot be the time for a *single* sweep of the primary electron beam (now recited in claim 1), because no magnification can be defined during a single beam sweep: "magnification" implies that an image is formed, and that in turn implies at least enough primary beam sweeps to form an image. Likewise, the "irradiation time," also called the "imaging time" (col. 3, line 34), is a factor in the irradiation amount IQ, which Otaka states is proportional to the square of the magnification (col. 3, line 29), and not proportional to the magnification itself, as it would be if the irradiation time comprised a single sweep of the primary electron beam.

(In the conventional art (including Otaka), at higher magnifications the scanning range length is reduced, contrary to the Applicants' claim 1, and the beam velocity across the sample to

be measured is lower, so the intensity of electron irradiation per unit area is increased. Otaka discloses this at col. 3, lines 29-41.)

Thus, Otaka discloses predetermined intervals such as t1 which are much longer than the interval associated with " a primary electron beam swept, in a scanning direction, over a fixed scanning range length," now recited in claim 1.

(2) As is quoted above (from col. 4, lines 29-37), Otaka "*changes* the scanning width of the electron probe 210 on the specimen surface" and this is contrary to "a fixed scanning range length" in the Applicants' claim 1.

(3) Otaka does not adjust the timing of the secondary electrons. Secondary electrons are collected by a detector 201 and the signal is sent through an amplifier 214 (Fig. 8 and col. 12, lines 19-23) but there is no mention of any action but amplifying that signal anywhere in Otaka. There is no disclosure of "detecting secondary electrons released from the object due to the irradiation during a predetermined period constituting a portion of a fixed primary electron beam scanning time," as claim 1 now recites.

The Applicants' specification at page 16, line 30 through page 17, line 2, describes how the timing of the scintillator capturing the secondary electrons is changed for various magnifications without changing the scanning rate of the primary electrons, so that unnecessary signal information is removed and only necessary signal information is captured and displayed. See page 13, line 19 through page 16, line 15. This avoids increases in the intensity of electron irradiation per unit area at high magnification. If the magnification is increased, the timing of the scintillator capturing the electrons is shortened by adjusting a (virtual, secondary-electron) scanning length in the horizontal direction, based on the magnification; see page 13, line 1 through page 14, line 16. Unnecessary data is cut off, and the remaining data is extracted and outputted to the CRT (see page 15, line 18 to page 16, line 6). As a result of this, the intensity of electron irradiation per unit area does not increase (see page 15, line 18 through page 16, line 6).

In regard to independent **claim 12** as now amended, this shares the features discussed above re claim 1, which features are not disclosed by Otaka.

The other claims under this rejection depend from claim 1 or claim 12 and should now be allowable by their dependence.

Claims 8-11 and 19-25 were rejected under 35 U.S.C. §103 as being unpatentable over Otaka in view of Nakagaki (U.S. Patent 6,476,388). This rejection is respectfully traversed.

Claims 8 and 19 depend from claims 1 and 12 and should be allowed if claims 1 and 12 are allowable, as argued above.

Independent **claim 9** as amended recites a fixed second scanning range in a second direction; this corresponds to the "single sweep of the primary electron beam over the fixed scanning range length" that is recited in claim 1. Claim 9 also recites that secondary electron detection is performed at intervals T = (FOV1/FOV2) × t1, with a first portion of the second scanning range being FOV1, the entire second scanning range being FOV2. Here FOV1/FOV2 corresponds to the "predetermined period constituting a portion of an a fixed primary electron beam scanning time," recited in claim 1.

It is respectfully submitted that, by the arguments above re claim 1, the subject matter of claim 9 is not disclosed by Otaka; and Nakagaki does not remedy the shortcomings of the primary reference. The text of Nakagaki applied by the Examiner does not disclose either a fixed primary beam scan or detecting secondary electrons during a portion FOV1/FIV2 of the primary beam scan.

Independent **claim 20** is allowable by the arguments presented above.

Dependent claims 10, 11, 21, and 22 are allowable for depending from allowable claim 9 or claim 20.

Withdrawal of the rejections and allowance of all claims are requested.

Respectfully submitted,

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